RenewableUK

RenewableUK is the not-for-profit trade association representing the onshore and offshore wind, wave and tidal energy industries and their supply chains, with over 400 member companies based throughout the county, from large multinationals to small businesses.

Cover image: CWind
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Introduction

A global trading nation

The UK has a long and proud tradition as a global trading nation, exporting goods, expertise and services around the world, looking outwards and seeking new markets further afield to bring economic benefits back home.

As we prepare to leave the European Union, breaking into fresh markets in every continent becomes even more important if we are to secure our future economic prosperity.

Wind and Marine Energy – A British success story

We are exporting our renewable energy technology and expertise not only to other parts of Europe, but also to the Americas, Africa, Asia and Australasia – to every continent apart from Antarctica. This is a British success story which deserves to be told, as many outside the sector are unaware of the extent of our progress.

In the first document of its kind, this report shows an illustrative sample of 36 UK-based companies operating in the wind and marine energy sector which exported products and services to 43 countries in one year: 2016.

This is based not only on publicly-announced contracts, but also on market intelligence provided to us via an in-house survey of member companies by RenewableUK.

Industrial-scale benefits

The renewable energy industry is already providing industrial-scale benefits for the UK, with onshore and offshore wind, wave and tidal energy projects being built around the country, revitalising communities, growing our domestic supply chain and maintaining Britain’s world-leading reputation for research and innovation.

The UK wind industry has an annual turnover of more than £5.9 billion in direct economic activity, according to the Office for National Statistics. This rises to over £11.3 billion when indirect economic activity is included. Offshore wind alone is bringing over £20 billion in investment to Britain over the course of this decade. The renewable energy sector is an important financial contributor to UK plc.

Businesses and factories have opened in parts of the UK which need new opportunities, offering apprenticeships to entrants to the labour market, and retraining for workers who bring valuable experience from other sectors such as the oil and gas industries. We are exporting hundreds of small onshore wind turbines made in Britain each year. Siemens’ offshore wind turbine production and installation facilities at Alexandra Dock in Hull, and MHI Vestas Offshore Wind’s blade factory on the Isle of Wight, are examples of the UK’s low-carbon economy in action. The marine energy industry has provided an economic lifeline to Cornwall, Wales and the Scottish Highlands and Islands.

Our Global Future

The international renewable energy market is, increasingly, where much of the smart money is going. Bloomberg New Energy Finance reported that $287.5bn was invested in clean energy worldwide in 2016. This represents a massive global economic opportunity for the UK, and we are seizing it. So too are global companies previously associated with fossil fuels. The Chief Executive of Royal Dutch Shell, Ben van Beurden, described the growth of renewable energy as unstoppable, and said that the company plans to gradually lift spending on clean technology as the world reduces its dependence on fossil fuels. He said the transition to cleaner forms of energy would continue irrespective of US policy.

BP has stated that renewables will be the fastest-growing energy source over the next 20 years, with an average annual expansion of 7%, resulting in a quadrupling of supply by 2035. The inexorable transition to low-carbon is proceeding around the world. The export opportunities for the United Kingdom which flow from this will increase exponentially in the decades ahead.

UK wind and marine companies are determined to maximise the benefits from the global renewables expansion and are working with the Department for International Trade on this. A strong domestic market provides a foundation for them to expand further. Renewable energy companies are heavy lifters in the UK economy and it is important that the upcoming Industrial Strategy recognises this. The UK’s decision to leave the European Union inevitably creates some uncertainty for companies, but the sector is committed to looking forward to future opportunities. With a robust domestic market and support to continue trading internationally, the wind and marine sector can carry on exporting British expertise across the world and increase activity in the decades ahead.
The top 10 most frequent export destinations in 2016 for the UK based wind and marine energy companies included in this report were, in order of importance, Germany, the USA, Denmark, Ireland, Australia, Canada, Sweden, France, Singapore and Taiwan, showing wind and marine companies have strong reach right across the globe. In total, our sample of 36 companies exported goods or services to 43 countries.

UK-based companies won onshore wind contracts in 28 countries, tidal energy contracts in 19 countries, offshore wind contracts in 18 countries and wave energy contracts in 11 countries. It is notable that, of the four technologies which RenewableUK represents, within this study it is onshore wind that offers the highest number of export destinations. Having a stronger domestic onshore wind market would allow companies to expand, boosting our ability to export even further – a point which should be considered in the Government’s future energy policy.

The 36 companies featured signed 557 export contracts in 2016, and worked on a total of 527 renewable energy projects overseas. These range from individual orders for small onshore turbines to multi-million pound deals to provide massive components and heavy-duty infrastructure for offshore wind farms.

The total number of export contracts signed by UK based companies working within the sector during this 12-month period will be considerably higher, as this sample of companies represents less than a tenth of RenewableUK’s membership.

Although commercial confidentiality means that not all companies are able to declare the value of each individual piece of work in public, they told RenewableUK that the contracts ranged widely in value, from £50,000 up to £30 million each. Typical contracts were worth between £1 million and £5 million.

The diversity of the UK wind and marine energy supply chain

The 2016 contracts highlighted in this report cover an extraordinary variety of goods and services, including supplying and maintaining large, medium and small onshore wind turbines and components, installing offshore wind turbines and underwater power cables, inspecting and maintaining offshore wind farms, providing helicopters, crew and vessels for the offshore wind sector, developing wave and tidal energy projects and providing components for the marine energy industry, conducting geological surveys, weather forecasting, monitoring wildlife, and providing financial and legal services.

This is a story not just about large multinational companies building factories and employing substantial workforces here. It is also about smaller companies throughout the UK. For example, Renewable Advice Limited, established in 2008 and based in Winchester, inspects and repairs onshore and offshore wind turbine blades. In 2016 it won contracts for work on projects in Germany, Ireland and the USA.

It is not just a story about providing big pieces of kit to massive offshore wind farms. It is also about the renewable energy consultancy firms based in the UK which exported their knowledge in 2016. These companies typically work across many technologies, including onshore wind, offshore wind and wave & tidal energy.

One example is ITPEnergised which has offices in Bristol, Edinburgh, Glasgow and London. It provides consultancy services for renewable energy developers and investors throughout the lifecycle of their projects, from the feasibility stage, through the design and construction period to the operational phase. It won offshore wind, wave and tidal energy contracts in 2016 in Canada, China, Taiwan, India, Turkey, Denmark, Sweden, Singapore and the Philippines.

Another example is Aquatera based in Orkney which exported its expertise on developing wind, wave and tidal energy projects to Chile, China, Colombia, Ireland, Indonesia, Japan, Mauritius, Peru, the Philippines, Singapore and the USA last year.
## Export Nation in Numbers

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>Number of countries which bought goods or services from a sample of 36 of the UK’s wind, wave and tidal companies in 2016</td>
</tr>
<tr>
<td>557</td>
<td>Number of export contracts signed by these 36 companies in 2016</td>
</tr>
<tr>
<td>527</td>
<td>Number of renewable energy projects which the 36 companies worked on in 2016</td>
</tr>
</tbody>
</table>

The range in value of the 557 export contracts is £50,000 to £30 million.
China Rising

As the country with the world’s largest installed capacity of wind energy (168,690MW), China is an important market for all wind supply chain companies. 2016 was a key year for the UK offshore wind industry in the development of further links with China. In July, RenewableUK and the UK Government brought a delegation of senior Chinese officials to this country to learn about the development of our world-leading offshore wind sector, as we have deployed more offshore wind capacity than any other country. In October we took a group of UK companies to China to do business. This leaves the UK in a strong position to build on the work of the 5 UK companies in our sample which signed contracts with China in 2016.

Trade links with China form a significant part of RenewableUK’s work with the Department for International Trade (DIT). In February 2017 RenewableUK and DIT were part of the team launching the UK-China Hub for Offshore Wind in Shanghai to help British companies break into the Chinese market. The Hub, led by the British Chamber Shanghai, will foster bilateral trade and promote greater understanding of the UK’s expertise, as well as building people-to-people links between UK and Chinese companies.

**EXPORT NATION: TABLE OF COUNTRIES**

<table>
<thead>
<tr>
<th>Country</th>
<th>Renewable Energy Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>onshore wind and offshore wind</td>
</tr>
<tr>
<td>Belgium</td>
<td>onshore wind, offshore wind, tidal energy</td>
</tr>
<tr>
<td>Brazil</td>
<td>onshore wind</td>
</tr>
<tr>
<td>Canada</td>
<td>onshore wind, offshore wind, tidal</td>
</tr>
<tr>
<td>Chile</td>
<td>onshore wind, wave, tidal</td>
</tr>
<tr>
<td>China</td>
<td>offshore wind, tidal</td>
</tr>
<tr>
<td>Colombia</td>
<td>tidal</td>
</tr>
<tr>
<td>Denmark</td>
<td>small &amp; medium wind, offshore wind, wave</td>
</tr>
<tr>
<td>Finland</td>
<td>onshore wind, offshore wind</td>
</tr>
<tr>
<td>France</td>
<td>onshore wind, small &amp; medium wind, offshore wind, wave, tidal</td>
</tr>
<tr>
<td>Germany</td>
<td>onshore wind, offshore wind</td>
</tr>
<tr>
<td>India</td>
<td>offshore wind</td>
</tr>
<tr>
<td>Indonesia</td>
<td>onshore wind wave, tidal</td>
</tr>
<tr>
<td>Ireland</td>
<td>onshore wind, wave, tidal</td>
</tr>
<tr>
<td>Israel</td>
<td>small &amp; medium wind</td>
</tr>
<tr>
<td>Italy</td>
<td>onshore wind, small &amp; medium wind</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>onshore wind</td>
</tr>
<tr>
<td>Japan</td>
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</tr>
<tr>
<td>Kazakhstan</td>
<td>onshore wind</td>
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<tr>
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<td>onshore wind</td>
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<td>Lithuania</td>
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</tr>
<tr>
<td>Malta</td>
<td>offshore wind</td>
</tr>
<tr>
<td>Mauritius</td>
<td>onshore wind, tidal</td>
</tr>
<tr>
<td>Mexico</td>
<td>onshore wind</td>
</tr>
<tr>
<td>Morocco</td>
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</tr>
<tr>
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<td>Netherlands</td>
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<tr>
<td>Norway</td>
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</tr>
<tr>
<td>Peru</td>
<td>wave, tidal</td>
</tr>
<tr>
<td>Poland</td>
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<tr>
<td>Philippines</td>
<td>wave, tidal</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>onshore wind</td>
</tr>
<tr>
<td>Singapore</td>
<td>tidal</td>
</tr>
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<td>South Africa</td>
<td>onshore wind</td>
</tr>
<tr>
<td>South Korea</td>
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<tr>
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<td>Sweden</td>
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</tr>
<tr>
<td>Taiwan</td>
<td>offshore wind, wave, tidal</td>
</tr>
<tr>
<td>The Faroe Islands</td>
<td>wave, tidal</td>
</tr>
<tr>
<td>The US Virgin Islands</td>
<td>small &amp; medium wind</td>
</tr>
<tr>
<td>Tonga</td>
<td>small &amp; medium wind</td>
</tr>
<tr>
<td>Turkey</td>
<td>onshore wind, offshore wind</td>
</tr>
<tr>
<td>USA</td>
<td>onshore wind, small &amp; medium wind, offshore wind, wave, tidal</td>
</tr>
</tbody>
</table>

*See the table overleaf for a visual representation of the data above.*
World Exports in 2016

See overleaf for the UK and Europe
RenewableUK’s sample of 36 UK-based companies exported goods and services to 43 countries in 2016. The contracts ranged in value from £50,000 to £30 million – typically they were worth £1m to £5m.
World Exports: the UK and Europe in 2016
Export Nation: the Companies Doing Business Overseas

From the small wind sector to companies providing cables for offshore wind farms, and organisations involved in our burgeoning marine sector, these are just a few of the UK’s wind and marine exporters.

CWind – exporting offshore wind expertise from Essex to Germany and Taiwan

CWind based in Chelmsford offers a wide range of services covering the entire lifecycle of offshore wind farms. These include installing underwater cables, supplying vessels for technicians and other workers, generating temporary power supplies during construction, carrying out inspections using remote-controlled vehicles and repairing blades.

In 2016, CWind worked on 7 offshore wind projects in Germany and Taiwan. The ten contracts were worth approximately £10 million in total. The company employs 150 people.

CWind began as a spin-off of CTruk Group, founded by local entrepreneur Andy White in 2009. At the time, he said that establishing CWind was not just about meeting the needs of the new wind farm industry, but also about regenerating the local seafaring community, a strategy which has worked well in areas around the UK where offshore wind farms are being built.

CWind’s first contract was with the Danish company DONG Energy and since then its operations have expanded to work on 36 offshore wind projects in European waters, including the UK. In 2014, the company entered the German market with a new office based in Bremen.
JDR Cables – Manufactured in Britain, installed throughout the world

JDR Cables is based in Ely, Cambridgeshire and has a state of the art manufacturing facility in Hartlepool, County Durham. The company designs and manufactures power cables for offshore wind farms, as well as supporting installation and maintenance activities.

In 2016, JDR worked on offshore wind projects in Germany, and turned its attention to the North American market – this resulted in the company securing an agreement in early 2017 as preferred cable supplier to US Wind for its first offshore project in America.

Formed in the early 1990s, the company has decades of experience in designing and manufacturing subsea power cables that operate in harsh environments right across the energy sector. It employs 500 people. In October 2016, the company announced plans to open a new European customer service support centre in Newcastle, potentially creating 50 more jobs. The location was strategically selected for its proximity to projects in the North Sea and Europe, JDR’s Hartlepool facility and the local UK supply chain.
**Moventas Gears UK – transforming the gearbox market at home and abroad**

Moventas Gears UK provides servicing for gearboxes in onshore and offshore wind turbines.

Based in Huddersfield, where it employs 25 staff, Moventas Gears UK has over 35 years of experience in the wind energy sector worldwide.

The company services and repairs gearboxes both in its workshops and in situ at the top of turbine towers. In 2016 the company opened a world-leading gearbox test centre in Huddersfield.

It covers as many as 20 different brands of gearboxes in over 60 models of wind turbine, extending their lifespan which reduces costs.

In 2016, the company won 75 contracts in Spain, Finland, Ireland and Germany, working on 53 renewable energy projects.
Windhoist is a world-leading onshore wind turbine installer based in Irvine, Ayrshire. Established in 2005, the company is involved in renewable energy projects in Western Europe, Africa and Australia.

In 2016, Windhoist worked on 20 projects outside the UK, in France, Germany, Belgium, Ireland, Morocco and Australia. The contracts varied in value from £50,000 to £4 million. The company uses heavy cranes to erect turbines, and skilled technicians to complete the mechanical and electrical work necessary to make them fully operational. It also carries out maintenance work, with technicians replacing gearboxes, generators and blades, as well as decommissioning turbines at the end of their lifespan.

Windhoist runs a training centre in Irvine which delivers classroom and practical learning to workers at all levels throughout the wind industry on issues such as working safely at height.

The company has installed more than 5,000 onshore wind turbines worldwide, with a combined capacity of over 10 gigawatts. The Windhoist group and associated companies employ 350 people.
EMEC – the marine energy centre that leads the world from Orkney

The European Marine Energy Centre (EMEC) in Orkney is the world’s leading wave and tidal energy test and demonstration centre. It offers ready-made, grid-connected berths to test full-scale devices in real sea conditions to reduce the time, risk and cost of developing new technology.

EMEC has exported its knowledge to 18 countries since it was established in 2003. In 2016 its consultants provided expertise to Belgium, China, Ireland, Peru, Singapore, South Korea, Sweden and the USA. It employs 25 people.

In Orkney, EMEC has participated in over 100 research and development projects, collaborated with 27 universities and has hosted 28 devices from 18 companies in some of the harshest marine environments.

50% of companies who have tested new technologies at EMEC are from overseas (Norway, Finland, Austria, France, Ireland, Singapore, Germany, Spain and the Netherlands).

An economic impact assessment, commissioned by Highlands and Islands Enterprise, estimates that EMEC has generated a Gross Value Added contribution of £249.6 million to the wider UK economy.

Orkney is an ideal base for marine energy testing, with its strong tidal currents, excellent ocean waves, sheltered harbour facilities and the maritime, environmental and renewable energy expertise that exists within the local community.
Sustainable Marine Energy Ltd – platforms built in Scotland for Singapore

Sustainable Marine Energy Ltd makes innovative marine energy platforms for tidal turbines. It is based in Edinburgh and Orkney, employing 14 people.

In 2016, the company broke into the South East Asian market by securing a major contract to supply a tidal energy platform for a project in Singapore. The platform will host four tidal turbines to be provided by SCHOTTEL Hydro, which is an investor in the company.

SME’s platforms use a novel marine anchoring system, drilling into the seabed using remotely operated underwater vehicles, which allows sites with very strong tides to be exploited at low cost.

These innovations are the result of bringing in expertise from across the wider energy sector. The company works with British supply chain companies to adapt their products for use in tidal energy projects. The company has created partnerships with a range of industries including offshore oil and gas, shipbuilding, civil engineering and subsea robotics.
Gaia-Wind – the company sending small wind turbines from Glasgow to Tonga

Gaia-Wind manufactures small onshore wind turbines in Glasgow, where it employs 14 people.

In 2016, the company exported 135 turbines and provided components, training and services to over 100 onshore wind projects in Denmark, Italy, Japan, the USA, the US Virgin Islands in the Caribbean and Tonga.

This represented over 50 contracts last year, with an average value of around £80,000 each and a total value of approximately £4 million.

In January 2017, the company celebrated a significant milestone when its 1,000th wind turbine rolled off the production line since the company moved its operations from Denmark to Glasgow in 2011.

Last year’s exports to Tonga build on Gaia-Wind’s initial success there in 2013, when the Polynesian island’s Prime Minister, Lord Tu’ivakano, commissioned the kingdom’s first wind turbine at Nakolo Village.

The orders from Tonga represent Gaia-Wind’s furthest ever export contracts, at a record distance of 16,109 kilometres. Gaia-Wind beat off competition from small wind turbine manufacturers in the US and Europe to win these orders in the South Pacific.
Britwind – the small wind company with large export figures

Britwind launched in 2014, producing small wind turbines which are designed and made in Stroud, Gloucestershire.

Now a leading global small wind exporter, Britwind sold more than 100 turbines around the world last year, worth more than £1 million.

The company employs around 30 people from the large and small wind industry, designing radical new wind turbines, to bring lower bills and energy independence to people in Britain and abroad.
Wave Hub – expanding at home, exporting abroad

Wave Hub off the north coast of Cornwall is the world’s largest and most technologically advanced test site for offshore renewable energy technology, with fully-commissioned and connected grid infrastructure and some of the best wave resources in Europe.

In 2016 it exported its knowledge to the USA for the first time, providing consultancy services as part of a feasibility study for a proposed wave energy test site in California. The contract was worth £18,000.

Wave Hub employs 6 people and is supporting the expansion of local supply chain companies like Mojo Maritime which provides engineering and consultancy services for the marine renewable energy industry, and A&P Falmouth which operates one of the world’s largest natural deep water harbours.

It is now developing two further demonstration zones – a wave site in Pembrokeshire and a tidal site in North Devon.
Growing our Export Nation

It is now widely accepted that renewables are a key part of the UK’s new energy mainstream, already delivering a quarter of our electricity. Wind alone is generating 11% of Britain’s power, and is on course to provide at least 20% by the end of the decade.

The renewable energy sector is creating highly skilled jobs in new industries, breathing economic life into parts of the country in need of regeneration. The UK’s low-carbon sector is growing faster than the rest of the economy, already employing hundreds of thousands of people and contributing 2-3% of GDP, which is comparable in size to energy-intensive manufacturing.

What is less widely known is that the onshore and offshore wind, wave and tidal energy industries are exporting goods, knowledge and services worth millions of pounds to UK plc around the globe every year. For the first time, this report reveals a list of 43 countries in which a sample of 36 UK-based wind and marine energy companies won more than 500 contracts to work on more than 500 renewable energy projects last year.

RenewableUK represents over 400 member companies in total which employ more than 250,000 people, so the total number of contracts will be considerably higher. Our members are innovating and investing, changing their business models and taking risks to break into new markets here and abroad. We are disrupting the status quo, constantly driving down costs, winning new work across six continents.

Our success is being watched enviously by other nations, not least in the wave and tidal energy industries. The UK is the global leader in marine energy. As the case studies in this document show, we have an active and innovative wave and tidal engineering sector which is building on Britain’s proud maritime industrial heritage. Competitors such as France, Canada, China and the US want to reap the economic benefits of the future global marine energy market by capitalising on our hard work. The UK must win the international ocean energy race. We need to retain and protect our lead, or we will lose our chance to be the pre-eminent exporter of this ground-breaking technology.

To secure our future as a global trader, we need to ensure that we have clarity from Government on the way ahead for all the technologies we represent; onshore and offshore wind as well as marine energy. Targeted support such as export credit guarantees (which ensure that an exporter receives payment for goods shipped overseas) would enable these technologies to punch their true weight in the international arena and access new markets.

RenewableUK is already working with the Department for International Trade to examine a variety of ways in which the industry can work closer with Government. Supportive measures will enable timely investment decisions to be taken with confidence, ensuring we retain our competitive edge as exporters. It will allow inward investment from around the world to flow into British companies.

RenewableUK has welcomed the Government’s commitment to support what it describes as “industries of the future” in its modern Industrial Strategy which includes commitments to deliver clean growth, boost trade and inward investment, and create more highly-skilled jobs.

The global renewable energy market is worth $290bn a year. As part of the Government’s Industrial Strategy, “Sector Deals” will be announced during the course of this year for key technologies. It is crucial that wind, wave and tidal energy should be included in this.

The Government will then have an opportunity to reinforce its commitment to the sector through its Clean Growth Plan and this autumn’s Budget.

These actions will help to secure the UK’s position as a leading exporter in the multi-billion pound global market for decades to come. The international market for wind, wave and tidal energy is significant and it is growing rapidly. Our departure from the European Union means that it is vital that we should establish ourselves as a global trader par excellence as swiftly as possible. The UK’s wind and marine energy industries offer us perfect modern vehicles to do this.

Acknowledgments:

The following UK-based companies are included in this study, as they kindly responded to RenewableUK’s survey, or issued public information on contracts awarded in 2016:

Our vision is for renewable energy to play a leading role in powering the UK.

RenewableUK is the country’s leading renewable energy trade association, specialising in onshore wind, offshore wind, and wave & tidal energy. Formed in 1978, we have a large established corporate membership, ranging from small independent companies to large international corporations and manufacturers.

Our aim is to ensure increasing amounts of renewable electricity are generated sustainably by projects deployed across the UK, and to support our members win business in renewable markets in the UK and around the world. Our priority is to make sure that RenewableUK members are at the heart of delivering this opportunity. To do this we provide them with the highest possible quality services and information, supporting them in any way we can to do more business more effectively.